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J. Douglas  
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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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INFORMATION ON DEMAND SYSTEM

VERIFICATION OF A TRANSLATION

Assistant Commissioner for Patents

Washington, D.C. 20231

SIR :

I, the below named translator, hereby declare that:

1. My name and post office address are as stated below.
2. The document for which the attached English translation is being submitted is a patent application on an invention entitled SERVER APPARATUS, SUBSCRIBER APPARATUS AND INFORMATION ON DEMAND SYSTEM.
3. That I am knowledgeable in the English language and in the language of JPH06-166695, and I believe the attached English translation to be a true and complete translation of JPH06-166695.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and

belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: October 31, 2003

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[TITLE OF THE INVENTION] Information on Demand System, and  
Information Providing Apparatus and Information Receiving Apparatus  
Using the Same

[NUMBER OF CLAIMS] 12

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[NAME OF ARTICLE] Specification 1

[NAME OF ARTICLE] Drawing 1

[NAME OF ARTICLE] Abstract 1

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[NECESSITY OF PROOF] Not necessary

[Name of the Document] Specification

[Title of the Invention] Information on demand system, and  
information providing apparatus and information receiving  
apparatus using the same

[What is claimed is]

[Claim 1] An information on demand system comprising an  
information providing apparatus for providing information  
according to a demand from a user, a display device for  
displaying the information provided by said information  
providing apparatus, and a memory device for storing the  
information provided by said information providing apparatus,  
wherein the amount charged to the user when providing the display  
device with the information and the amount charged to the user  
when providing the memory device with the information are  
different from each other.

[Claim 2] An information on demand system comprising  
information providing means for providing information  
according to a demand from a user, information receiving means  
for receiving the information provided by said information  
providing means, a display device for displaying an output  
signal of said information receiving means, a memory device for  
storing the output signal of said information receiving means,  
output destination discriminating means for discriminating  
whether the output signal of said information receiving means  
is to be provided to the display device or the memory device,

charging means for charging a different amount between when charging the user in the case of providing the display device with the information and when charging the user in the case of providing the memory device with the information on the basis of the output of said output destination discriminating means, and amount memory means for storing the amount depending on the output of said charging means.

[Claim 3] An information providing apparatus comprising user identifying means for reading identification information for identifying a user, information providing means for providing information according to a demand from the user, providing destination discriminating means for discriminating whether said information providing means provides information to a display device or a memory device, charging means for charging a different amount between when charging the user in the case of providing the display device with the information and when charging the user in the case of providing the memory device with the information, and amount memory means provided for each user, wherein said amount memory means accumulates the amount depending on the output of said charging means in the amount memory means corresponding to the user provided with the information on the basis of the identification information identified by the user identifying means.

[Claim 4] An information receiving apparatus comprising provided information designating means for informing an

information provider of the information demanded by a user, information receiving means for receiving the information presented from the information provider according to the demand from the user, and output destination discriminating means for discriminating whether the output signal of said information receiving device is provided to a display device or a memory device and informing the information provider with the destination of the output.

[Claim 5] An information on demand system comprising information providing means for providing information according to a demand from a user, and user status collecting means for collecting the user's status periodically, wherein said user status collecting means collects the amount spent by each user, and records the amount information for each user.

[Claim 6] An information receiving apparatus comprising information receiving means for receiving information presented according to a demand from a user, output destination discriminating means for discriminating whether the output signal of said information receiving device is provided to a display device or a memory device, charging means for charging a different amount between when charging the user in the case of providing the display device with the information and when charging the user in the case of providing the memory device with the information on the basis of the output of said output destination discriminating means, and amount memory means for

accumulating the amount depending on the output of said charging means.

[Claim 7] An information receiving apparatus of claim 6, wherein said amount memory means informs the information provider periodically with the amount spent by the user.

[Claim 8] An information receiving apparatus comprising a demodulator for demodulating information sent from an information provider, and a terminal control device for receiving an output signal of said demodulator, issuing the signal to a recording and reproducing apparatus for recording information in a recording medium in which the identification number of a user is recorded, and controlling the supply of this output signal, wherein said terminal control device registers the identification number of the user recorded in the recording medium of said recording and reproducing apparatus and the information identification number presented from the information provider in the terminal control device when the user finishes recording of the information presented from the information provider in the recording medium of the recording and reproducing apparatus.

[Claim 9] An information receiving apparatus of claim 8, wherein the signal is not issued to the recording and reproducing apparatus unless the identification number of the user is recorded in the recording medium of the recording and reproducing apparatus.



[Claim 10] An information receiving apparatus of claim 8 or 9, wherein a specific identification number of the recording and reproducing apparatus is used instead of the identification number of the user.

[Claim 11] An information on demand system using the information receiving apparatus of claim 11, wherein the owner of the recording and reproducing apparatus is discriminated from the specific identification number of the recording and reproducing apparatus, and the charge is collected from this owner.

[Claim 12] An information on demand system of claim 11, wherein information cannot be recorded unless approved by the information provider when the user desires to record the information provided from the information provider in the recording and reproducing apparatus.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention relates to an information on demand system such as CATV, and more particularly to an information on demand system comprising a plurality of charging systems.

[0002]

[Prior Art]

Hitherto, in an information on demand system such as CATV, an information provider and a user make a contract with each

other, and a CATV line is provided between the information provider and the user, and video information or the like is provided from the information provider to the user. In this case, basically, there is only one charging system, and whether the user records the video information provided from the information provider in the VTR or the like at the user's information receiving side, or merely watches on the TV without recording, the same amount is periodically collected from the user by the information provider.

[0003]

[Problems to be Solved by the Invention]

In such configuration, however, plural charging systems could not be set up by using the same CATV line.

[0004]

In particular, as the video information is being digitized owing to the progress in the digital technology, if digital signals of video information can be directly recorded in a recording medium of VTR or the like, duplication without deterioration in picture quality and sound quality as compared with the video information provided by the information provider is possible, which casts problems from the viewpoint of protection of copyright and others.

[0005]

The information on demand system of the invention is intended to allow the user of the terminal receiving information

from CATV or the like to pay an appropriate charge to the information provider of CATV or the like, and more particularly the invention presents an information on demand system capable of recording the received information in a recording medium while controlling the recording device, so that the user can pay the charge to the information provider depending on the recorded information.

[0006]

[Means to Solve the Problems]

To solve the problems, the information on demand system of the invention comprises an information providing apparatus for providing information according to a demand from a user, a display device for displaying the information provided by the information providing apparatus, and a memory device for storing the information provided by the information providing apparatus, in which the amount charged to the user when providing the display device with the information and the amount charged to the user when providing the memory device with the information are different from each other.

[0007]

[Operation of the Invention]

According to the charging system of the invention, when the user records the program provided from the CATV circuit in a recording medium, it can be inspected by all CATV senders, so that every recording can be charged. In an actual recording

operation, the terminal controller stores it, so that the sender can check whenever necessary.

[0008]

[Description of the Preferred Embodiments]

Referring now to the drawings, preferred embodiments of the information on demand system of the invention are described below.

[0009]

(Exemplary Embodiment 1)

First, a configuration of information providing apparatus in an information on demand system is explained.

[0010]

In Fig. 1, reference numeral 1 is user identifying means for reading identification information for identifying a user. Reference numeral 2 is information providing means for providing information through a line 11 according to a demand from the user, and this information includes movie and other video information, music and other audio information, town information showing the sightseeing spots and famous restaurants, computer programs for games, and many others. Reference numeral 3 is providing destination discriminating means for discriminating whether the information providing means 2 presents to user's display device or user's memory device as described below, and 4 is charging means for charging a different amount between when charging the user in the case of

providing the display device with the information and when charging the user in the case of providing the memory device with the information. Reference numeral 5 is amount memory means provided for each user, and the amount memory means 5 accumulates the amount depending on the output of the charging means 4 on the amount memory means 5 corresponding to the user provided with the information on the basis of the identification information of the user identified by the user identifying means 1.

[0011]

Next, a configuration of an information receiving apparatus in the information on demand system is explained.

In Fig. 1, reference numeral 6 is provided information designating means for informing the information provider of the information demanded by the user, and 7 is information receiving means for receiving the information provided from the information provider according to the demand from the user. Reference numeral 8 is output destination discriminating means for discriminating whether the output signal of the information receiving means 7 is to be presented to the user's display device or user's memory device, and it informs the information provider of the signal output destination through the line 11. Reference numeral 9 is a recording and reproducing apparatus for recording the presented information issued through the output destination discriminating means 8, and an optical disk is used in the

embodiment, but any other may be used as far as the information can be recorded, such as magnetic recording medium or semiconductor device. Reference numeral 10 is a display device for displaying provided information issued through the output destination discriminating means 8, and a CRT is used in the embodiment, but any other may be used as far as the information can be displayed, such as liquid crystal device, printer, other image forming device for displaying information on paper or other transfer object, and means for transmitting information to the user through the five senses. Reference numeral 11 is a line such as cable of CATV, but both wired and wireless means may be used such as telephone line or satellite broadcasting line as far as information can be transmitted.

[0012]

In the information on demand system having such configuration, the operation is explained below. In the embodiment, the information is the video information in the CATV, and the line 11 is a CATV cable.

[0013]

In the first place, the user designates desired video information to be provided through the provided information designating means 6 of the information receiving apparatus. The provided information designating means 6 transmits the identification number of the user and the identification number of the designated video information to the information

providing apparatus through the line 11. When the information providing means receives the identification number of the user and the identification number of the designated video information, the user identifying means 1 identifies the identification number of the user, and judges if the user is presently registered in the information providing apparatus or not, and if the user is registered, a signal permitting information provision is issued to the information providing means 2. If the user is not registered, an information provision inhibition signal is issued to the information providing means 2.

[0014]

When information provision is permitted, the information providing means 2 transmits the video information desired to be provided by the user to the information receiving means 7 through the line 12. The information receiving means 7 demodulates the received video information and processes by descrambling or the like, and issues to the output destination discriminating means 8. The output destination discriminating means 8 issues either to the display device 10 such as CRT or to the recording and reproducing apparatus 9. At this time, the information of the output destination is transmitted to the providing destination discriminating means 3 of the information providing apparatus through the line 11.

[0015]

Receiving the output destination information, the providing destination discriminating means 3 issues the information to the charging means 4. The charging means 4 is set to charge a higher amount when presenting information to the user's memory device than when presenting information to user's display device, and the amount is issued to the amount memory means 5 depending on the output of the providing destination discriminating means 3. The amount memory means 5 accumulates the charging information in the amount memory means 5 corresponding to the user provided with the information depending on the output of the charging means 4, so that the information provider can collect the spent amount from the user every month on the basis of the amount stored in the amount memory means 5.

[0016]

In the case of movie or other video information, since video information for about several hours must be recorded in digital signals, in this embodiment, the optical disk is used in the recording and reproducing apparatus 9.

[0017]

(Exemplary Embodiment 2)

Other embodiment of information on demand system of the invention is explained. Same parts as in embodiment 1 are identified with same reference numerals and explanation is omitted.



[0018]

In Fig. 1, the recording and reproducing apparatus 9 is an optical disk, and the display device 10 includes a CRT 21, a central processing unit 22, a semiconductor memory 23, a reset circuit 24, and a timer 25. In Fig. 2, reference numeral 23 is a semiconductor memory for receiving and storing the information transmitted from the information providing means 2 through the output destination discriminating means 8, 22 is a central processing unit (CPU) for executing a game on the basis of the information of the semiconductor memory, and 21 is a CRT for displaying sound and image corresponding to the result of this execution. Reference numeral 25 is a timer for issuing a signal a certain time after recording of information in the semiconductor memory 23, and 24 is a reset circuit for resetting and erasing the content of the semiconductor memory depending on the output signal of the timer 25. The line 11 is a telephone circuit.

[0019]

The operation of the information on demand system having such constitution is same as the operation of embodiment 1.

The information in the semiconductor memory 23 of the display device 10 is erased after a certain time, and when information is presented to the display device 10, the user can play the game only for a specified time.

[0020]

In this constitution, the charging system can be changed between the case of playing the game only once and the case of providing the user with the game software.

[0021]

(Exemplary Embodiment 3)

A different embodiment of information on demand system of the invention is explained. Same parts as in the foregoing embodiments are identified with same reference numerals and explanation is omitted.

[0022]

First, the constitution of the information providing apparatus of the information on demand system is explained.

In Fig. 3, reference numeral 12 is user status collecting means for collecting the information about the user status periodically, and it is designed to collect the amount spent by each user and record the amount information for each user.

[0023]

Next, the constitution of the information receiving apparatus of the information on demand system is explained.

Reference numeral 12 is charging means for charging a different amount between when charging the user in the case of providing the display device 10 with the information and when charging the user in the case of providing the memory device 9 with the information on the basis of the output of the output destination discriminating means 8. Reference numeral 13 is

amount memory means for accumulating the amount depending on the output of the charging means 12.

[0024]

In the information on demand system having such constitution, the operation is explained below. In this embodiment, the information is the video information in the CATV, and the line 11 is a CATV cable.

[0025]

In the first place, the user designates the video information desired to be provided by means of the provided information designating means 6 of the information receiving apparatus. The provided information designating means 6 transmits the identification number of the designated video information to the information providing apparatus through the line 11. When the information providing means receives the identification number of the designated video information, a signal permitting information provision is issued to the information providing means 2.

[0026]

Next, the information providing means 2 transmits the video information desired to be provided by the user to the information receiving means 7 through the line 12. The information receiving means 7 demodulates, descrambles and processes the received video information, and issues to the output destination discriminating means 8. The output destination

discriminating means 8 issues the signal either to the CRT of the display device 10 or the recording and reproducing apparatus 9 according to the request of the user. At this time, the signal showing whether the information is presented to the display device 10 or the information is presented to the memory device 9 is issued to the charging means 12. The charging means 12 issues the amount information depending on the output destination discriminating means 8 to the amount memory means 13. On the basis of the output signal, the amount memory means 13 accumulates the amount spent by the user.

[0027]

The user status collecting means 12 collects the identification number of the user and the amount spent by the user as the information about the user status every month from each user, and record the amount information for each user. On the basis of the recorded amount information, the information provider can collect the spent amount from the user every month.

[0028]

In such constitution, when copying without deterioration in picture quality and sound quality, a different charging system can be set up aside from an ordinary charge. In particular, when issuing analog signals directly in the CRT 11, or demodulated and descrambled digital signals in the recording and reproducing apparatus 9, the video information of nearly same picture quality and sound quality as the software of the

information provider is recorded in the recording medium of the recording and reproducing apparatus, and therefore it is significant to set up two different charging systems.

[0029]

Besides, it is not necessary to discriminate the identification number of the user every time the information is presented to the user, and the constitution of the information providing apparatus is simplified, and the time required for providing information can be shortened.

[0030]

In the information providing apparatus, if the user status collecting means 12 is not furnished, the information provider can visit the user periodically to check the spent amount displayed in the information receiving apparatus, and the amount memory means 13 periodically informs the information provider of the spent amount of the user, so that the same effects may be obtained.

[0031]

In the information receiving apparatus, if the provided information designating means is not furnished, a different charging system from the ordinary charge can be set up when copying without deterioration in picture quality and sound quality.

[0032]

(Exemplary Embodiment 4)

Another different embodiment of information receiving apparatus used in the information on demand system of the invention is explained. Same parts as in the foregoing embodiments are identified with same reference numerals and explanation is omitted.

[0033]

In Fig. 4, reference numeral 31 is an information providing apparatus for providing video information of CATV or the like, it scrambles to encrypt the video information to be presented to the user, and encodes in channel to be suited to a line 32 (the channel-encoded signal is hereinafter called modulated signal), and transmits the signal to the line 32. The video information signal supplied from the information providing apparatus 31 is a digital bit stream in packet form. Reference numeral 32 is a line for transmitting the video signal of CATV or the like to the user. Reference numeral 33 is an apparatus having functions of channel decoding for demodulating the modulated signal presented from the information providing apparatus 31 and descrambling into video information on the basis of the scrambled signal (hereinafter called DEC&DEC).

[0034]

Reference numeral 34 is a demultiplexer (DEMUX) for converting the packet signal issued from the DEC&DES 33 into a parallel signal, and at the output terminal of the DEMUX 34, reference numeral 34a is control data, 34b is a compressed audio

signal, and 34c is an output terminal for issuing the video signal. Reference numeral 35 is a video decoder for decoding the compressed video signal issued from the output terminal 34c into the original video signal, and 36 is an audio decoder for decoding the compressed audio signal issued from the output terminal 34b into the original audio signal. Reference numeral 37 is a video output terminal connected to a video signal input terminal of VTR, TV or the like, and 38 is an audio output terminal connected to an audio signal input terminal of VTR, TV or the like.

[0035]

Reference numeral 39 is a terminal controller, and it controls the operation of the terminal by the key input 10 and control data 4a. Reference numeral 41 is a recording and reproducing apparatus and its output 12 is supplied into the terminal controller. That is, the output signal of DEC&DES 33 which is a demodulator for demodulating the information transmitted from the information provider is supplied, and the signal is issued to the recording and reproducing apparatus 41 for recording the information in the recording medium in which the identification number of the user is recorded, and the supply of this output signal is controlled by the terminal controller 39, and when the user finishes recording the information provided from the information provider in the recording medium of the recording and reproducing apparatus 41, the terminal

controller 39 registers the identification number of the user recorded in the recording medium of the recording and reproducing apparatus 41 and the information identification number provided from the information provider in the terminal controller. In such constitution, the operation is explained below.

[0036]

The information providing apparatus 31 scrambles the video information to be presented to the user in order to encrypt the information, and modulates into a format suited to the line 32, and transmits to the line 32. Receiving the modulated signal from the line 32, the DEC&DES 33 demodulates the modulated signal, and descrambles the scrambled signal so that the scrambling is cleared.

[0037]

The operation of output of provided video information signal in the display device such as TV is explained.

[0038]

The output signal of the DEC&DES 33 is separated and issued as control data, compressed audio signal, and compressed video signal by the DEMUX 34. The compressed audio signal issued from the output terminal 34b is converted into the original audio signal by the audio decoder 36, and the compressed video signal issued from the output terminal 34c is converted into the original video signal by the video decoder 35. The method of



compression is, for example, MPEG system. The control data, compressed audio signal, compressed video signal, and the output signal of the DEC&DES 33 are supplied into the terminal controller 39.

[0039]

The operation of recording and reproducing the provided video information signal in the recording and reproducing apparatus is explained by referring to a flowchart in Fig. 5.

[0040]

The operation of the recording and reproducing apparatus is controlled by the terminal controller 9. For this interface, for example, SCSI-2 (ANSI X3.13-199X standard) is used.

[0041]

First, the user loads the recording medium into the recording and reproducing apparatus 41, selects a desired program to be recorded by using the input key 40, and gives a record command to the terminal controller 39. The recording and reproducing apparatus 41 writes the identification number of the user, and the name of the program desired to be recorded in the recording medium, while the terminal controller 39 inspects the identification number of the recording and reproducing apparatus 41, the identification number of the user, and the recorded program name.

[0042]

By this inspection, when all of the identification number

of the recording and reproducing apparatus, the identification number of the user, and the recorded program name are confirmed to be registered, recording in the recording medium is started in the following procedure.

[0043]

However, by the inspection, if any one of the identification number of the recording and reproducing apparatus, the identification number of the user, and the recorded program name is found to be not registered, the terminal controller 9 informs the user that the identification number of the recording and reproducing apparatus, the identification number of the user, or the recorded program name is wrong.

[0044]

Afterwards, the terminal controller 39 gives a record start command to the recording and reproducing apparatus 41, and when the program requested by the user is actually entered through the line 32, the recording and reproducing apparatus 41 starts to record. When the recording and reproducing apparatus 41 finishes recording, the fact of completion of recording is registered in the control terminal 39.

[0045]

In such constitution, the information provider of CATV can manage the charge of the user as required.

[0046]

All video signals and audio signals issued from terminals

37 and 38 are issued by way of the terminal controller 39, and when starting recording, it is checked if the identification number is recorded in the recording medium or not, and if the identification number of the user is not recorded in the recording medium, no signal is issued to the recording and reproducing apparatus, and therefore the terminal controller 39 does not allow the user to record the program in the recording and reproducing apparatus 11 or view the program on the TV unless all of the identification number of the recording and reproducing apparatus, the identification number of the user, and the recorded program name are registered.

[0047]

In the foregoing embodiments, the user is identified by using the user identification number, but the original identification number of the recording and reproducing apparatus may be used instead of it, and further the owner of the recording and reproducing apparatus may be identified from the original identification number of the recording and reproducing apparatus, and the charge can be collected from the owner, so that same effects are obtained in such information on demand system.

[0048]

In a different constitution, the information provider registers the program name as for a specific program, and when the user attempts to record this program name, it may be

inspected in the terminal controller to request approval of the information provider.

[0049]

The charging system can be also set so as to reproduce only by the recording and reproducing apparatus used in recording the information, or to reproduce by an arbitrary reproducing apparatus.

[0050]

[Advantage of the Invention]

As explained herein, according to the information on demand system of the invention, a different charging system from ordinary charge can be set in the case of copying without deterioration in picture quality and sound quality. In particular, when issuing analog signals directly in the CRT 11, or demodulated and descrambled digital signals in the recording and reproducing apparatus 9, the video information of nearly same picture quality and sound quality as the software of the information provider is recorded in the recording medium of the recording and reproducing apparatus, and therefore it is significant to set up two different charging systems.

[0051]

Moreover, since the program and information are recorded in the recording medium on the basis of the user identification number or the identification number of the recording and reproducing apparatus, the recording and reproducing apparatus

used at the time of reproduction can be limited.

[Brief Description of the Drawings]

Fig. 1 is a block diagram of an embodiment of an information on demand system of the invention.

Fig. 2 is a block diagram of a display device used in the information on demand system of the invention.

Fig. 3 is a block diagram of an embodiment of an information on demand system of the invention.

Fig. 4 is a block diagram of an information receiving apparatus used in the information on demand system of the invention.

Fig. 5 is a flowchart of the information receiving apparatus used in the information on demand system of the invention.

[Description of the Reference Numerals]

- 1 User identifying means
- 2 Information providing means
- 3 Providing destination discriminating means
- 4 Charging means
- 5 Amount memory means
- 6 Provided information designating means
- 7 Information receiving means
- 8 Output destination discriminating means
- 9 Recording and reproducing apparatus
- 10 Display means

[Name of the Document] Abstract

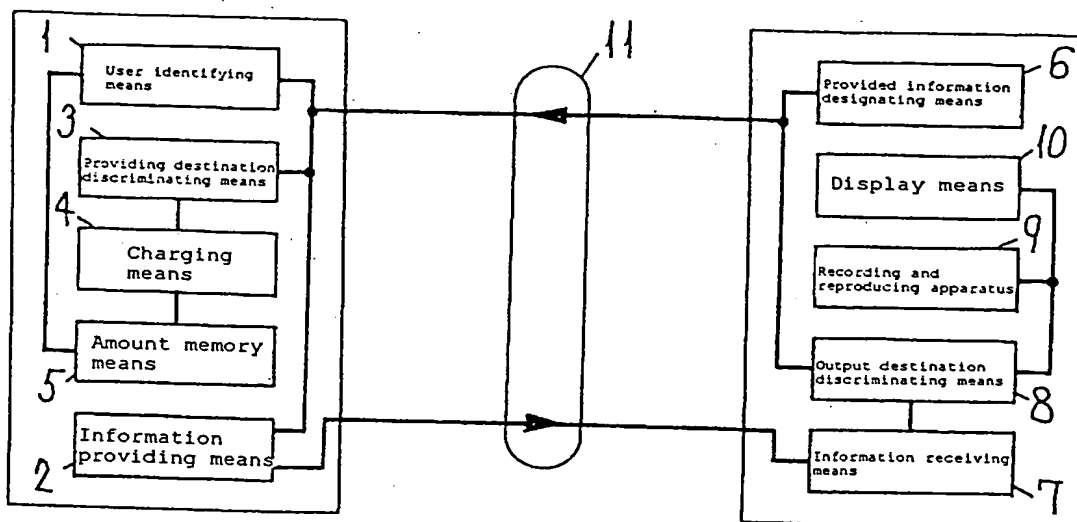
[Abstract]

[Object] The user of a terminal for receiving information of CATV or the like pays an appropriate charge to the information provider of CATV or the like.

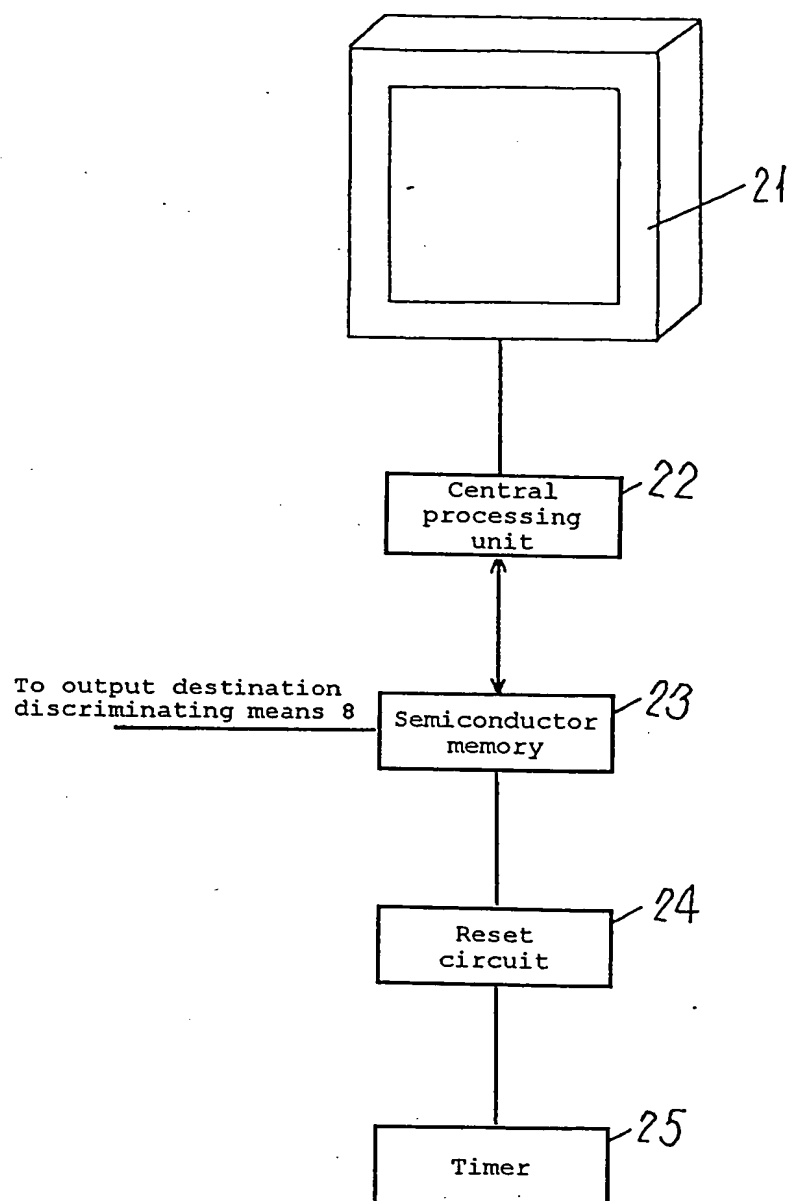
[Means to Solve the Problems] Comprising an information providing apparatus 2 for providing information according to a demand from a user, a display device 10 for displaying the information provided by the information providing apparatus 2, and a memory and reproducing device 9 for storing the information provided by the information providing apparatus 2, the amount charged to the user when providing the display device 10 with the information and the amount charged to the user when providing the memory and reproducing device 9 with the information are different from each other.

[Selected Drawing] Fig. 1

[Name of the Document] Drawing  
[Fig. 1]

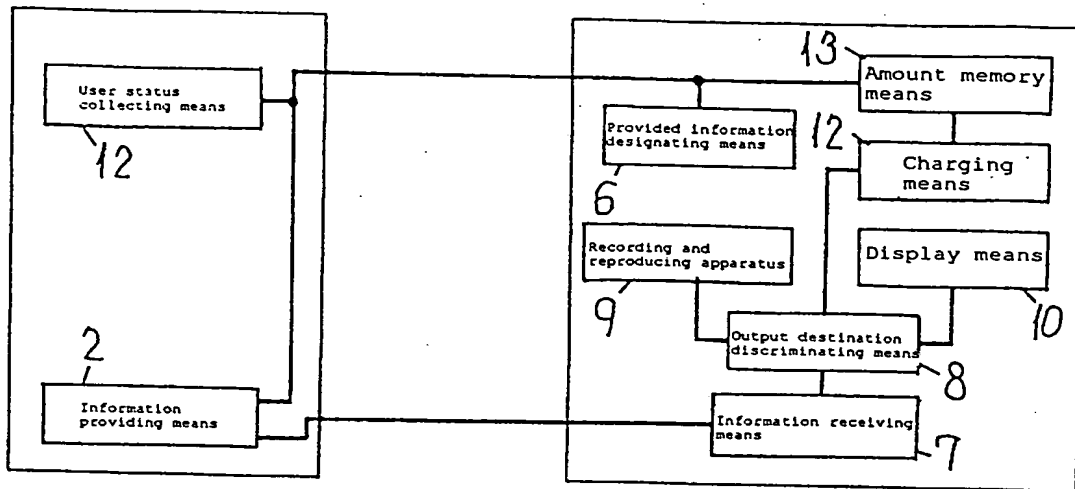


[Fig. 2]

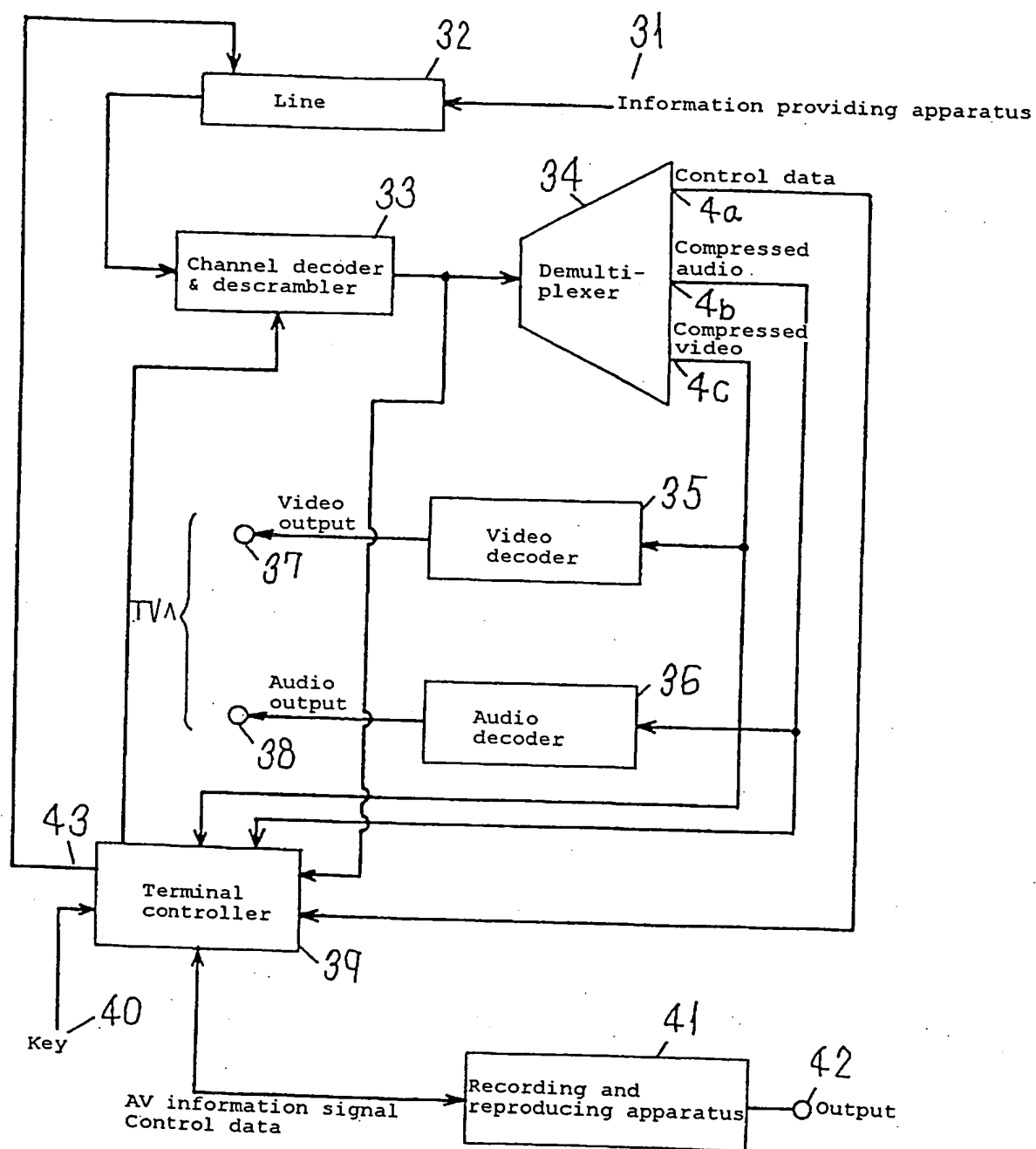




[Fig. 3]



[Fig. 4]



[Fig. 5]

